

Abstract of the Disclosure

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This invention provides methods for sequencing DNA by detecting the identity of a nucleotide within a DNA sequencing fragment using mass spectrometry. The invention provides cleavable linkers for attaching a label to a dideoxynucleotide and provides labeled dideoxynucleotides. The invention also provides methods for increasing mass spectrometry resolution using linkers with different mass. The invention further provides systems for separating a labeled moiety from non-labeled components in one or more samples in solution.